

Application No. 10/728,344
Amtd. dated April 26, 2006
Response to Office Action of February 7, 2006

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Amendment to Claims:

Claims 1-2 (canceled)

Claim 3 (currently amended). The system as recited in Claim 24 23 in which said translator comprises:
eight poles and windings of four phases.

Claims 4 -7 (cancelled).

Claim 8 (currently amended). The system as recited in Claim 5, 23 further comprising:

- (k) a plurality of PROMS for continual storage of dynamic values of translator position and each phase current associated therewith;
- (l) for each PROM, means for storage of propulsive force values as a function of each of said dynamic values stored in each PROM; and
- (m) means for summing said propulsive forces.

Claim 9 (original). The system as recited in Claim 8, further comprising:

- (n) for each PROM, means for storage of levitation force values associated with said normal force; and
- (o) means for summing said levitation forces.

Claim 10 (currently amended). The system as recited in Claim 9, further comprising:

means for establishing command values for currents associated with each phase of said multi-phase excitation producing said longitudinal force;
means for comparing comparison of said currents to respective command values thereof to produce respective-error values for each comparison; and
means for monitoring said error values.

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Claim 11 (cancelled).

Claim 12 (currently amended). The system as recited in Claim 22 23 further comprising:

means for dynamically compensating for said error values that are out-of-limit error values.

Claim 13 (currently amended). The system as recited in Claim 44, 23 further comprising:

means for dynamically compensating for said error values that are out-of-limit error values.

Claim 14 (currently amended). The system as recited in Claim 22 23 further comprising:

a second LSRM, said LSRM in electromagnetic engagement with said first LSRM, having means for DC multi-phase excitation of a stator and translator thereof, to thereby produce a guidance force for said system using said error values of said second LSRM.

Claim 15 (original). The system as recited in Claim 14 in which said second LSRM is in quadrature with said first LSRM.

Claim 16 (currently amended). The system as recited in Claim 15, further comprising:

means for dynamically compensating for said error values that are out-of-limit error values.

Claim 17 (original). The system as recited in Claim 16, further comprising:
means for independent control of said guidance force of said second LSRM.

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Claim 18 (currently amended). The system as recited in Claim 22, 23 in which said translation system comprises:

a part of any of a transportation system, an elevator, a rocket launcher, an aircraft launcher, a rail gun, a conveyor, a door opener, a machine tool, or a servodrive.

Claim 19 (original). The system as recited in Claim 18, further comprising:
a second LSRM, said LSRM in electromagnetic engagement with said first LSRM, having means for DC multi-phase excitation of a stator and translator thereof, to thereby produce a guidance force for said system using said error values of second LSRM

Claim 20 (currently amended). The system as recited in Claim 19, in which either of said LSRM comprises a longitudinal or transverse flux type machine.

Claim 21 (cancelled).

Claim 22 (cancelled).

Claim 23 (new). A multi-phase translation system, comprising:

- (a) a first linear switched reluctance machine (LSRM) having a stator and a translator configured, positioned and proportioned for electromagnetic, substantially non-mutually inductive, engagement with each other;
- (b) means for selectable application of at least one phase of a multi-phase DC excitation to said LSRM, to produce a longitudinal propulsive force between said stator and said translator;
- (c) means for substantially simultaneous application of at least two phases of said multi-phase excitation to said LSRM to produce a selectable value of said normal force between said stator and translator;

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- (d) means for independent control of said DC excitation of said application means (b) and of said multi-phase excitation of said application means (c) above;
- (e) means for measurement of an absolute position of said translator relative to said stator;
- (f) means for measurement of currents associated with each phase of said multi-phase excitation;
- (g) means for establishing command values for currents associated with each phase of said multi-phase excitation producing said longitudinal force;
- (h) means for comparison of said currents to respective command values thereof to produce error values for each comparison;
- (i) means for monitoring said error values;
- (j) means for applying said error values to a carrier signal; and
- (k) means for applying said error values of said signal to respective phases of said excitation current of said LSRM.